Jones & DeMille Engineering

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545 East Cheyenne Drive
Suite C
Evanston, WY 82930
307.288.2005

TO: BIG O TIRES, LLC

FROM: JONES AND DeMILLE ENGINEERING, INC

RE: BIG O TIRES DRAINAGE CALCULATIONS FOR PROPOSED LEAN-TO

This memo describes the methods by which a subterranean detention structure has been designed per request by Big O Tires, LLC. The detention structure was designed based on a 100 year 24 hour storm. The drainage area from both the existing and proposed structures was also used for design of the structure.

The area from which runoff will be retained was calculated as the entire area of the proposed addition as well as the north slope of the existing building which would drain onto the roof of the proposed addition. The calculated roof drainage area was 3835 square feet.

The 100 year 24 hour design storm was used to determine runoff generation. NOAA Atlas 14 was used to determine the point depth for the 100 year 24 hour storm. The point depth of the 100 year 24 hour storm is 2.12 in.

The amount of total runoff was determined by multiplying the amount of precipitation by the area of the existing north roof slope and addition roof. The amount of runoff that was calculated was 894 cubic feet.

REQUIRED VOLUME			
TRIBUTARY AREA		5060	sq. ft.
DEPTH OF RAINFALL		2.12	in.
RUNOFF COEFFICIENT		1	
REQUIRED VOLUME		894	cu. ft.

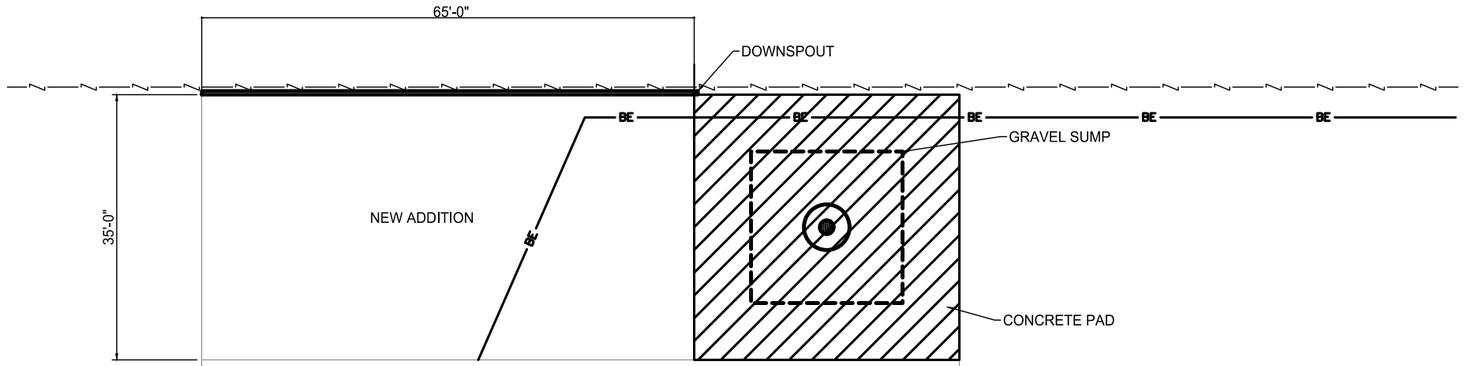
The size of the subterranean detention structure was determined by calculating the internal volume of a 5 foot tall, 6 foot diameter manhole, as well as the volume of voids within the surrounding drain rock. The surrounding drain rock was assumed to be 33% voids. A detention structure of 20' X 20' X 6' is sufficient to handle the design storm for the given area.

DRY WELL VOLUME					
MANHOLE		DIA.	6	(feet)	
		No. MHS	1		
		HEIGHT	5	(feet)	
		MANHOLE(S) VOLUME:	141	cubic feet	
DRAIN ROCK		LENGTH	20	(feet)	
		WIDTH	20	(feet)	
		HEIGHT	6	(feet)	
		GROSS DRAIN ROCK VOLUME	2,499	cubic feet	
		LESS MANHOLE(S)	218	cubic feet	
		NET DRAIN ROCK VOLUME:	753	cubic feet	
		TOTAL DRY WELL VOLUME:		894	cubic feet

Sincerely,

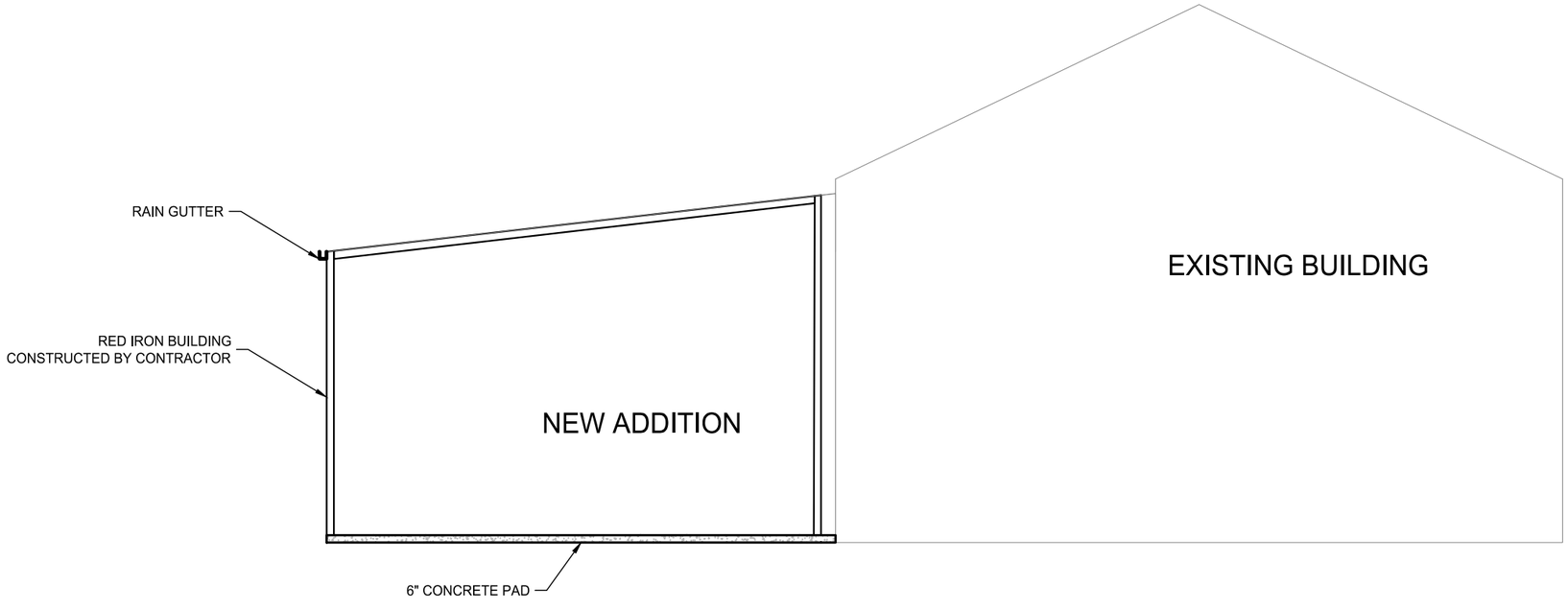
Eric Major

ERIC MAJOR
JONES & DeMILLE ENGINEERING, INC



SITE PLAN VEIW

SCALE: 1" = 20'



SCALE: 1" = 10'

SECTION VIEW

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REVISIONS

NO.	DATE	REMARKS

SCALE:

DWG NAME: H:\JD\Proj\2104-022\DEV\Base and Grading\Drainage\Design.dwg

UPDATED: 4/27/2021
PLOTTED: 4/27/2021

Jones & DeMille Engineering, Inc.
CIVIL & STRUCTURAL ENGINEERING - SURVEYING
GIS - ENVIRONMENTAL - MATERIALS TESTING
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APPROVAL RECOMM: PROJECT DESIGN ENGINEER DATE
APPROVED QUALITY MANAGEMENT REVIEW DATE

BIG O TIRE

STORM WATER DRAINAGE

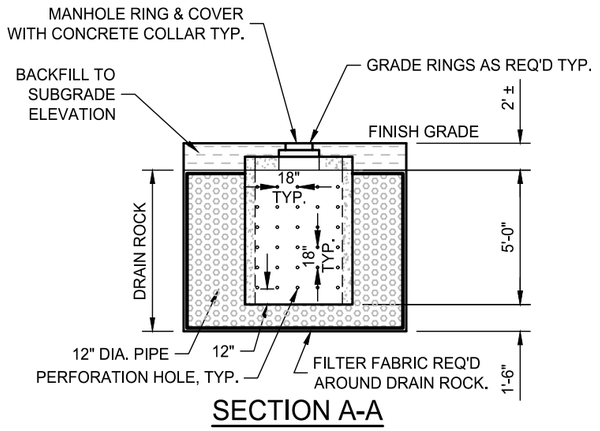
SITE PLAN AND SECTION VIEW

PROJECT NUMBER: 2104.015.PR

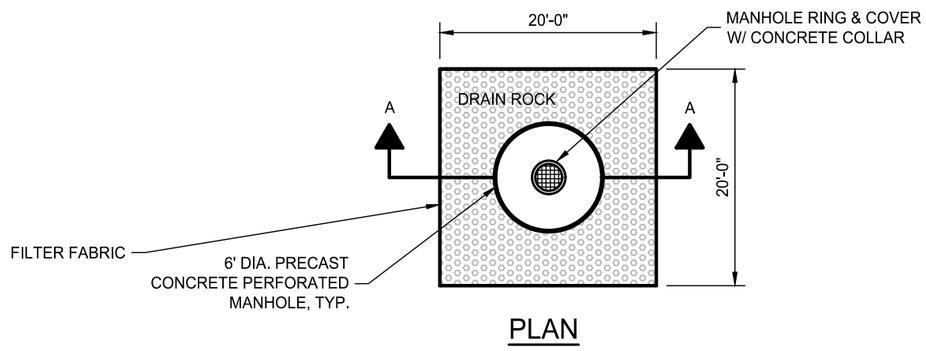
SUBMITAL: REVIEW - NOT FOR CONSTRUCTION

COUNTY
COUNTY

SHEET NO. ----



SECTION A-A



PLAN

DRY WELL DETAIL

NOTES:
1. INSTALL RING & COVER ON EACH MANHOLE.
2. SIZE TO STORE MINIMUM 2.12 INCH DEPTH OF WATER OVER DRAINAGE AREA. CALCULATION SHOULD INCLUDE APPROPRIATE RUNOFF COEFFICIENT (C). SIZE IS BASED ON A 100 YEAR 24 HOUR STORM EVENT.

A1	DRY WELL DETAIL
SCALE	1" = 10'

REVISIONS

NO.	DATE	REMARKS

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APPROVAL RECOMM: PROJECT DESIGN ENGINEER DATE
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BIG O TIRE
STORM WATER DRAINAGE
DETAILS
PROJECT NUMBER: 2104-015.PR
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